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For Settlement Purposes Only



1069003 - R8 SDMS

June 20, 1997

**ASARCO ENVIRONMENTAL MANAGEMENT COMMITMENTS TO EPA
UPON REACHING FINAL AGREEMENT**

1. Implementation and maintenance of EMS at all U.S. operating units in the Copper Division, the Lead, Zinc, Silver and Aggregates Division (including American Limestone), and Encycle.

- Incorporate EPA comments in EMS Level 1 document
- Implementation plan for each unit (90 days)
- Progress reports to EPA for information (July 1 and January 1 each year thereafter until fully implemented at all units)

2. Periodic EMS system audits at all U.S. operating units in the Copper Division, the Lead, Zinc, Silver and Aggregates Division (including American Limestone), and Encycle.

- Frequency: internal -- six months after full implementation of EMS and every 2 years thereafter

-- third party system audit (every 3 years)

- Develop auditor qualifications (consider ASTM or other authoritative standards)
- Development of EMS audit protocols and procedures with input from outside consultant and EPA
- Team leader and attorney training
- Auditor training
- Annual progress report to EPA (for 3 years after EMS implementation)

3. Periodic environmental compliance audits at all U.S. operating units in the Copper Division, the Lead, Zinc, Silver and Aggregates Division (including American Limestone), and Encycle.

- Frequency: smelters, refinery and Encycle (every year); all others (every 2 years)
 - Develop auditor qualifications (consider ASTM or other authoritative standards)
 - Team leader and attorney training
 - Auditor training
 - Revisions to compliance audit protocols and procedures with input from outside consultant and EPA
 - Annual progress report to EPA (for 3 years after EMS implementation)
4. Environmental awareness training for all employees of U.S. operating units in the Copper Division, the Lead, Zinc, Silver and Aggregates Division (including American Limestone), and Encycle.
- 4 hours initial training (first year)
 - Two-hour annual refresher training (each year thereafter)
 - Add to new employee training program
5. Develop and implement corporate-wide protocol for identifying, understanding and communicating environmental requirements to affected organization personnel, on-site service providers, and contractors.
6. Development of process flow diagrams for all U.S. operating units in the Copper Division, the Lead, Zinc, Silver and Aggregates Division (including American Limestone), and Encycle.
- Form team including operations and outside consultant
 - Schedule for completion
 - Develop prototype
 - Develop mechanism for updating

Plan Summary- Exhibit A

March 1, 1996 through
August 31, 1997
18 Month
Total

September 1, 1997 through
August 31, 1998
12 Month
Total

Subsequent Years
Beginning
September 1, 1998
Annual
Total

Item #1

Implement EMS at Thirteen Locations

2 FTE Outside EMS Consultants for 50 Weeks of Training
EMS Hardware and Software
Permit / MSDS Database - Initial
Permit / MSDS Database - Maintenance
Operating Staff Involvement
3 Person EMS Core Team
13 EMS Existing Employees
7 EMS New Employees

144,000

\$590,000

368,000

45,000

3,144,900

10,406,550

7,169,800

622,656

622,656

466,992

1,255,238

1,255,238

1,118,128

675,898

675,898

Total EMS Implementation Costs

12,135,670

10,681,592

5,743,692

Item #2

EMS System Audits

2 Outside Auditor Training Consultant for 10 weeks
2 Outside Legal Consultant for 5 weeks
1 Third Party Audit Team
2 New Hire Internal System Auditors
1 FTE Staff Attorneys

118,000

118,000

88,500

88,500

11,000

144,000

207,552

212,968

207,552

207,552

Total EMS System Audits Cost

425,052

771,018

Item #3

Compliance Audit Program

1 FTE Staff Attorney
1 Outside Legal Consultant for 12 weeks
1 Existing Technical Services Employee
4 FTE Existing Operating Employees
3 New Hire Environmental Auditors
Training Program for 50 Existing Operating Employees

311,328

207,552

207,552

106,200

106,200

159,725

106,483

106,483

527,363

351,575

351,575

319,450

319,450

146,746

146,746

Total Compliance Audit Costs

998,415

1,238,006

1,238,006

Item #4

Environmental Awareness Training

1 FTE Staff Attorney
2 Outside Training Consultants for 10 weeks
1 Outside Legal Consultant for 5 weeks
New Hire Awareness Trainers
Environmental Awareness Training
4,369 Hourly Employees at Overtime Rates
1,253 Salaried Employees
Audio / Visual Materials
1 Outside Training Consultant for 5 weeks
1 Outside Legal Consultant for 2 weeks

207,552

118,000

44,250

319,450

106,483

477,000

239,000

153,000

76,000

10,000

10,000

29,500

29,500

17,700

17,700

Total Environmental Awareness Training Cost

1,376,452

478,683

Item #5

Communication of Environmental Requirements

Software and Reference Materials
Environmental Staff Certification Training for 100 Operating Employees

35,000

35,000

193,493

19,349

Total Communication of Environmental Requirements Cost

228,493

54,349

Item #6

Develop Process Flow Diagrams - Included in Item #1

Grand Total Items #1 - #6

13,134,085

13,349,595

6,285,749

Item #1

Implement EMS at Thirteen Locations

2 FTE Outside EMS Consultants for 50 Weeks of Training
 EMS Hardware and Software
 Permit / MSDS Database - Initial
 Permit / MSDS Database - Maintenance
 Operating Staff Involvement
 3 Person EMS Core Team
 13 EMS Existing Employees
 7 EMS New Employees

		144,000	144,000
9,480,500		948,050	10,408,550
364,838	65,671	38,484	468,992
873,537	157,237	87,354	1,118,128
10,698,875	222,907	1,213,887	12,135,670

Total EMS Implementation Costs

Item #2

EMS System Audits

2 Outside Auditor Training Consultant for 10 weeks
 2 Outside Legal Consultant for 5 weeks
 1 Third Party Audit Team
 2 New Hire Internal System Auditors
 1 FTE Staff Attorneys

Total EMS System Audits Cost

Item #3

Compliance Audit Program

1 FTE Staff Attorney
 1 Outside Legal Consultant for 12 weeks
 1 Existing Technical Services Employee
 4 FTE Existing Operating Employees
 3 New Hire Environmental Auditors
 Training Program for 50 Existing Operating Employees

243,225	43,781	24,323	311,328
124,785	22,481	12,479	159,725
412,002	74,160	41,200	527,363
780,012	140,402	78,001	998,415

Total Compliance Audit Costs

Item #4

Environmental Awareness Training

1 FTE Staff Attorney
 2 Outside Training Consultants for 10 weeks
 1 Outside Legal Consultant for 5 weeks
 New Hire Awareness Trainers
 Environmental Awareness Training
 4,389 Hourly Employees at Overtime Rates
 1,253 Salaried Employees
 Audio / Visual Materials
 1 Outside Training Consultant for 5 weeks
 1 Outside Legal Consultant for 2 weeks

Total Environmental Awareness Training Cost

Item #5

Communication of Environmental Requirements

Software and Reference Materials
 Environmental Staff Certification Training for 100 Operating Employees

Total Communication of Environmental Requirements Cost

Item #6

Develop Process Flow Diagrams -

Grand Total Items #1 - #6

11,478,887	363,310	1,291,889	13,134,085
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Item #1

Implement EMS at Thirteen Locations

2 FTE Outside EMS Consultants for 50 Weeks of Training	\$500,000	\$90,000	\$0	\$590,000
EMS Hardware and Software				
Permit / MSDS Database - Initial			368,000	368,000
Permit / MSDS Database - Maintenance				
Operating Staff Involvement	6,518,000		651,800	7,169,800
3 Person EMS Core Team	486,450	87,561	48,645	622,656
13 EMS Existing Employees	980,855	178,518	98,068	1,255,238
7 EMS New Employees	528,045	95,048	52,805	675,898

Total EMS Implementation Costs

9,013,150	449,127	1,219,315	10,681,592
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Item #2

EMS System Audits

2 Outside Auditor Training Consultant for 10 weeks	100,000	18,000		118,000
2 Outside Legal Consultant for 5 weeks	75,000	13,500		88,500
1 Third Party Audit Team			11,000	11,000
2 New Hire Internal System Auditors				
1 FTE Staff Attorneys	182,150	29,187	16,215	207,552

Total EMS System Audits Cost

337,150	60,687	27,215	425,052
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Item #3

Compliance Audit Program

1 FTE Staff Attorney	162,150	29,187	16,215	207,552
1 Outside Legal Consultant for 12 weeks	90,000	16,200		106,200
1 Existing Technical Services Employee	83,190	14,974	8,319	106,483
4 FTE Existing Operating Employees	274,668	49,440	27,467	351,575
3 New Hire Environmental Auditors	249,570	44,923	24,957	319,450
Training Program for 50 Existing Operating Employees	39,616	7,131	100,000	146,746

Total Compliance Audit Costs

899,194	161,855	176,938	1,238,006
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Item #4

Environmental Awareness Training

1 FTE Staff Attorney	162,150	29,187	16,215	207,552
2 Outside Training Consultants for 10 weeks	100,000	18,000		118,000
1 Outside Legal Consultant for 5 weeks	37,500	6,750		44,250
New Hire Awareness Trainers	249,570	44,923	24,957	319,450
Environmental Awareness Training				
4,369 Hourly Employees at Overtime Rates	477,000			477,000
1,253 Salaried Employees	153,000			153,000
Audio / Visual Materials			10,000	10,000
1 Outside Training Consultant for 5 weeks	25,000	4,500		29,500
1 Outside Legal Consultant for 2 weeks	15,000	2,700		17,700

Total Environmental Awareness Training Cost

1,219,220	106,060	51,172	1,376,452
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Item #5

Communication of Environmental Requirements

Software and Reference Materials			35,000	35,000
Environmental Staff Certification Training for 100 Operating Employees	79,231	14,262	100,000	193,493

Total Communication of Environmental Requirements Cost

79,231	14,262	135,000	228,493
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Item #6

Develop Process Flow Diagrams - Included In Item # 1

Grand Total Items #1 - #6

11,547,945	791,990	1,609,660	13,949,595
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Salary/
BenefitsTravel
ExpenseOther
CostsSubsequent Years
Beginning
September 1, 1998
Annual
TotalItem #1

Implement EMS at Thirteen Locations

2 FTE Outside EMS Consultants for 50 Weeks of Training
 EMS Hardware and Software
 Permit / MSDS Database - Initial
 Permit / MSDS Database - Maintenance
 Operating Staff Involvement
 3 Person EMS Core Team
 13 EMS Existing Employees
 7 EMS New Employees

		45,000	45,000
2,859,000		285,900	3,144,900
488,450	87,561	48,845	622,656
980,655	176,518	98,088	1,255,238
<u>528,045</u>	<u>95,048</u>	<u>52,805</u>	<u>675,898</u>
4,854,150	359,127	530,415	5,743,692

Total EMS Implementation Costs

Item #2

EMS System Audits

2 Outside Auditor Training Consultant for 10 weeks
 2 Outside Legal Consultant for 5 weeks
 1 Third Party Audit Team
 2 New Hire Internal System Auditors
 1 FTE Staff Attorneys

100,000	18,000		118,000
75,000	13,500		88,500
		144,000	144,000
166,380	29,948	16,638	212,966
<u>162,150</u>	<u>29,187</u>	<u>16,215</u>	<u>207,552</u>
503,530	90,635	176,853	771,018

Total EMS System Audits Cost

Item #3

Compliance Audit Program

1 FTE Staff Attorney
 1 Outside Legal Consultant for 12 weeks
 1 Existing Technical Services Employee
 4 FTE Existing Operating Employees
 3 New Hire Environmental Auditors
 Training Program for 50 Existing Operating Employees

162,150	29,187	16,215	207,552
90,000	16,200		106,200
83,190	14,974	8,319	106,483
274,668	49,440	27,487	351,575
249,570	44,923	24,957	319,450
<u>39,618</u>	<u>7,131</u>	<u>100,000</u>	<u>146,749</u>
899,194	161,855	176,958	1,238,006

Total Compliance Audit Costs

Item #4

Environmental Awareness Training

1 FTE Staff Attorney
 2 Outside Training Consultants for 10 weeks
 1 Outside Legal Consultant for 5 weeks
 New Hire Awareness Trainers
 Environmental Awareness Training
 4,369 Hourly Employees at Overtime Rates
 1,253 Salaried Employees
 Audio / Visual Materials
 1 Outside Training Consultant for 5 weeks
 1 Outside Legal Consultant for 2 weeks

83,190	14,974	8,319	106,483
239,000			239,000
76,000			76,000
		10,000	10,000
25,000	4,500		29,500
<u>15,000</u>	<u>2,700</u>		<u>17,700</u>
438,190	22,174	18,319	478,683

Total Environmental Awareness Training Cost

Item #5

Communication of Environmental Requirements

Software and Reference Materials
 Environmental Staff Certification Training for 100 Operating Employees

		35,000	35,000
7,923	1,426	10,000	19,349
7,923	1,426	45,000	54,349

Total Communication of Environmental Requirements Cost

Item #6

Develop Process Flow Diagrams -

Grand Total Items #1 - #6

6,702,987	635,218	947,545	8,285,749
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EXHIBIT E

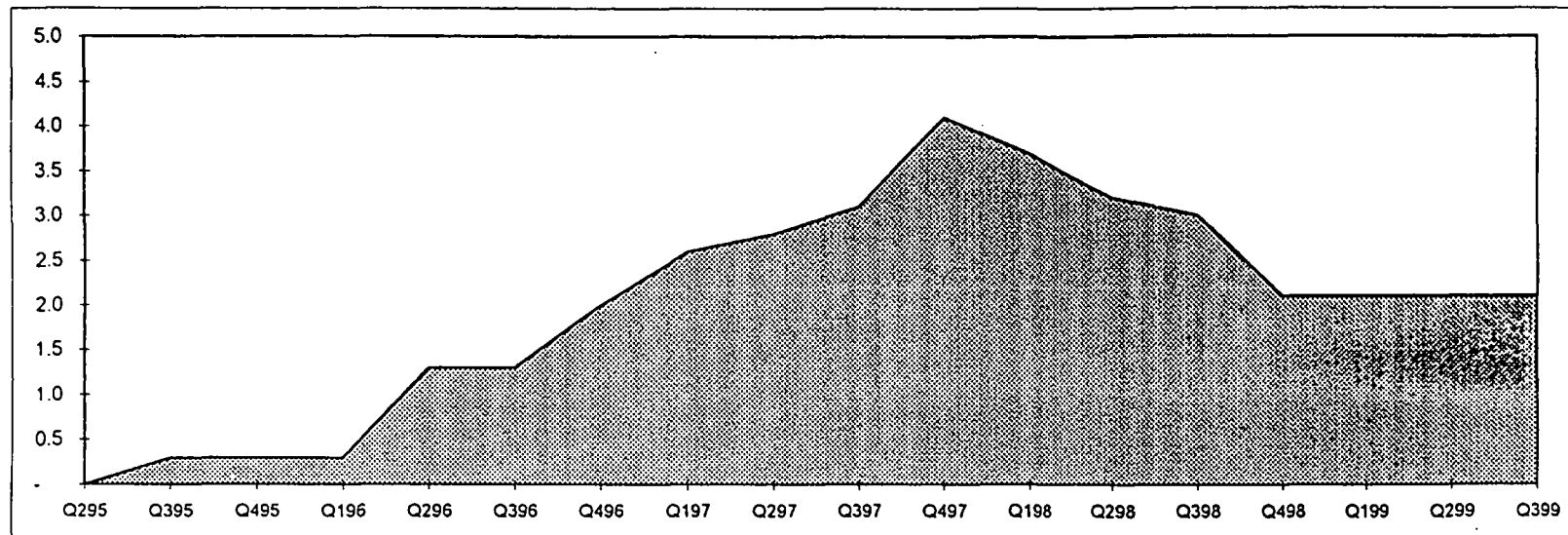
ESTIMATE OF SALARIED HOURS FOR EMS
IMPLEMENTATION AND SUBSEQUENT YEARS

	TOTAL PLANT CURRENT SALARY EMPLOYEES		ESTIMATED # EMPLOYEES CURRENT WITH EMS INVOLVEMENT		ESTIMATED HOURS SPENT ON EMS			
					MAR 1, 1996 - AUG 31, 1998 IMPLEMENTATION		SEP 1, 1998 - AUG 31, 2002 SUBSEQUENT	
	EXEMPT	NONEXMT	EXEMPT	NONEXMT	EXEMPT	NONEXMT	EXEMPT	NONEXMT
ACR	84	58	69	38	13,800	7,106	5,865	3,040
EL PASO	74	21	66	8	19,140	1,920	7,920	640
RAY	219	91	195	46	42,900	8,970	18,525	3,680
MISSION	147	35	131	32	24,235	4,800	11,135	1,280
SILVER BELL	30	5	26	3	4,160	420	1,950	150
TENN MINES	61	17	51	0	8,109	0	3,366	0
AM LIMESTONE	25	54	8	4	2,736	632	312	192
LEADVILLE	18	2	9	1	2,196	200	900	90
GLOBE	7	5	3	3	624	624	312	312
WF, S/WATER	34	9	32	9	6,080	1,620	2,880	540
GLOVER	41	24	36	10	12,528	3,020	6,588	1,420
EHELENA	48	13	46	14	18,584	5,250	10,120	2,310
ENCYCLE	24	72	24	25	3,672	3,300	1,176	1,650
TECH. SERV.	43	31	15	5	4,305	660	1,200	330
TOTAL	855	437	711	198	163,069	38,522	72,249	15,634

GRAND TOTALS

1,292909

EXHIBIT F
EMS Spending By Quarter
(In Millions)



RECEIVED
PROTECTION DIVISION
JUN 2 1977
FBI - NEW YORK

BACKUP CHARTS

Plan Summary

Item #1

Implement EMS at Thirteen Locations

- 2 FTE Outside EMS Consultants for 50 Weeks of Training
- EMS Hardware and Software
- Permit / MSDS Database - Initial
- Permit / MSDS Database - Maintenance
- Operating Staff Involvement
- 3 Person EMS Core Team
- 13 EMS Existing Employees
- 7 EMS New Employees

Total EMS Implementation Costs

Item #2

EMS System Audits

- 2 Outside Auditor Training Consultant for 10 weeks
- 2 Outside Legal Consultant for 5 weeks
- 1 Third Party Audit Team
- 2 New Hire Internal System Auditors
- 1 FTE Staff Attorneys

Total EMS System Audits Cost

Item #3

Compliance Audit Program

- 1 FTE Staff Attorney
- 1 Outside Legal Consultant for 12 weeks
- 1 Existing Technical Services Employee
- 4 FTE Existing Operating Employees
- 3 New Hire Environmental Auditors
- Training Program for 50 Existing Operating Employees

Total Compliance Audit Costs

Item #4

Environmental Awareness Training

- 1 FTE Staff Attorney
- 2 Outside Training Consultants for 10 weeks
- 1 Outside Legal Consultant for 5 weeks
- New Hire Awareness Trainers
- Environmental Awareness Training
- 4,360 Hourly Employees at Overtime Rates
- 1,253 Salaried Employees
- Audio / Visual Materials
- 1 Outside Training Consultant for 5 weeks
- 1 Outside Legal Consultant for 2 weeks

Total Environmental Awareness Training Cost

Item #5

Communication of Environmental Requirements

- Software and Reference Materials
- Environmental Staff Certification Training for 100 Operating Employees

Total Communication of Environmental Requirements Cost

Item #6

Develop Process Flow Diagrams - Included in Item #1

Grand Total Items #1 - #6

Inflation Adjusted Costs \$328,818,302

Net Present Value @ 3%/Yr \$148,400,000

March 1, 1998 through
August 31, 1997
18 Month
Total

September 1, 1997 through
August 31, 1998
12 Month
Total

Subsequent Years
Beginning
September 1, 1998
Annual
Total

Annual Spending in Five Year Increments			
September 1, 2002 Through August 31, 2007	September 1, 2007 Through August 31, 2012	September 1, 2012 Through August 31, 2017	September 1, 2017 Through August 31, 2022

144,000

10,406,550

466,992

1,118,128

12,135,870

\$590,000

368,000

7,169,800

622,656

1,255,238

875,888

10,681,582

45,000

3,144,800

622,656

1,255,238

875,888

5,743,692

118,000

88,500

11,000

207,552

425,052

118,000

88,500

144,000

212,966

207,552

771,818

311,328

159,725

527,363

888,415

207,552

106,200

106,483

351,575

319,450

148,748

1,238,006

207,552

106,200

106,483

351,575

319,450

148,748

1,238,806

207,552

118,000

44,250

319,450

477,000

153,000

10,000

29,500

17,700

1,376,452

106,483

230,000

76,000

10,000

29,500

17,700

478,683

35,000

192,493

228,493

35,000

19,349

54,349

13,134,085

13,848,585

8,265,749

13,134,085

14,654,217

36,777,600

\$2,528,000

40,895,000

76,593,000

\$1,837,000

13,300,000

13,700,000

28,900,000

30,300,000

25,300,000

20,800,000

17,100,000

Manpower

ENVIRONMENTAL MANPOWER BASELINE

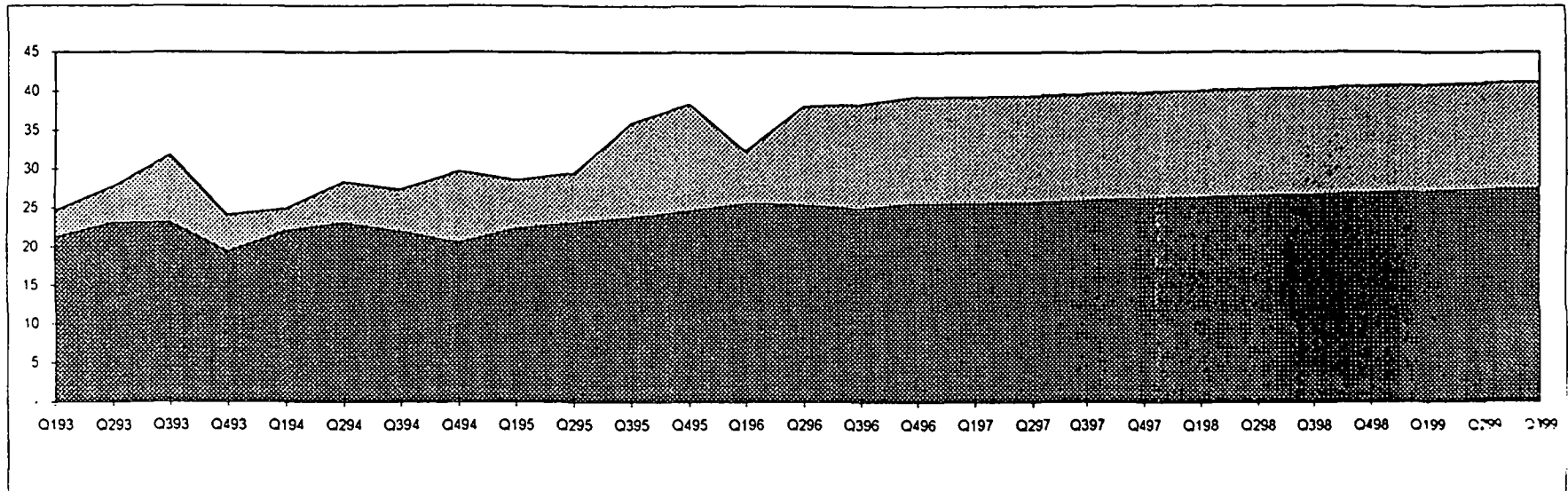
	Environmental Manpower Baseline <u>March 1996</u>	Environmental Additions Since <u>March 1996</u>	Environmental Manpower Baseline <u>Sep. 1997</u>	Employees Re-Assigned to EMS <u>Since 3/96</u>
East Helena	6	0	6	1
Glover	6	2	8	1
Missouri Mines	1	0	1	1
Tennessee Mines	1	0	1	1
Globe	2	0	2	1
Leadville	1	0	1	1
Other Lead Units	3	0	3	
Ray	6	1	7	1
Mission	2	0	2	1
El Paso	4	1	5	1
Amarillo	3	0	3	1
Silver Bell	1	1	2	1
Other Copper Units	2	1	3	
Encycle	4	0	4	1
American Limestone	2	1	3	1
Technical Services Center	6	1	7	1
Environmental Operations	8	0	8	3
Total	58	8	66	17

Manpower

SALARIED MANPOWER BASELINE

	<u>Total Manpower Baseline March 1996</u>	<u>Staff Additions Since March 1996</u>	<u>New Hire Employees Planned for EMS</u>	<u>Total Manpower Baseline Sep. 1997</u>
East Helena	60	-	1	61
Glover	60	4	1	65
Missouri Mines	41	2		43
Tennessee Mines	91	(14)	1	78
Globe	12	-		12
Leadville	21	(1)		20
Ray	319	(10)	1	310
Mission	155	26	1	182
El Paso	96	(2)	1	95
Amarillo	136	5	1	142
Silver Bell	13	22		35
Other Copper Units		-		
Encycle	96	-		96
American Limestone	78	1	1	79
Technical Services Center	72	(4)	6	74
Environmental Operations		-		
Total	<u>1,250</u>	<u>29</u>	<u>13</u>	<u>1,292</u>

EXHIBIT G
Asarco Domestic Environmental Spending By Quarter
(In Millions)

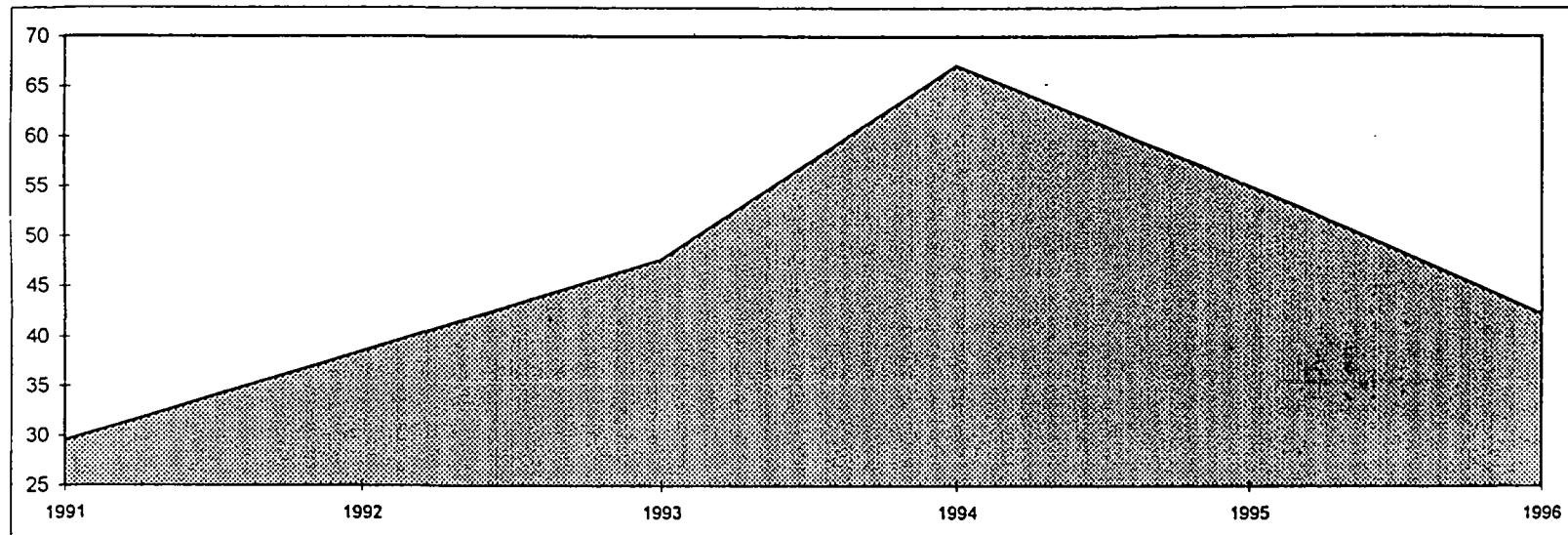


	1993	1994	1995	1996	1997	1998
Capital Spending	21.3	22.6	38.4	46.4	54.8	54.8
Operating Env. Spending	87	87.8	93.9	101.6	103.5	106.7

Projection Assumption:

Capital costs held constant after Q496, at a rate of \$13.7 million per quarter.
 Operating Environmental Spending inflated at an annual rate of 3% after Q496.

EXHIBIT H
Environmental Remediation Spending
(In Millions)



Cost Assumptions:

	Grade	Annual Base	Fringes (41%)	Total
ASARCO Employees - Salary and Fringe Benefits				
EMS Core Team =	23	\$ 115,000	\$ 47,150	\$ 162,150
Staff Attorneys =	23	\$ 115,000	\$ 47,150	\$ 162,150
EMS Employees =	15	\$ 53,500	\$ 21,935	\$ 75,435
EMS Auditor =	16	\$ 59,000	\$ 24,190	\$ 83,190
Operating Employees	14	\$ 48,700	\$ 19,967	\$ 68,667
Environmental Trainer =	16	\$ 59,000	\$ 24,190	\$ 83,190
Technical Services Staff =	16	\$ 59,000	\$ 24,190	\$ 83,190
Work hours per Year				2,080

Travel Costs as a Percent of Salary + Benefits

18%

Overhead as a Percent of Salary + Benefits

10%

Outside Consultants

FTE EMS Consultant =

1,000 /day

FTE Training Consultant

1,000 /day

FTE Legal Consultant

1,500 /day

Compliance Audit Training Course

2,000 /employee

24 /hrs per course

Communication Training Program

1,000 /employee

24 /hrs per course

EMS Hardware and Software per Plant =

12,000

ASARCO Employees Cost Per Hour

	\$	#	\$/Hr.
Hourly	88076	4,369	20.16
Sal - Exempt	30076	855	35.18
Sal - NonExpt	8081	398	20.30
Total Salary	38158	1253	30.45

Note: All current dollar costs are reported in 1997 dollars.

Net Present Value was calculated using a 3% annual inflation rate and discounted using the following government security rates:

Maturity	Rate
5 year	6.33%
10 year	6.65%
15 year	6.68%
20 year	6.75%
25 year	6.81%